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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,520	12/31/2003	Guido Canzona	024.0043 (03-0476)	9248

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EXAMINER	
JENKINS, DANIEL J	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 05/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/750,520	CANZONA, GUIDO	
	Examiner	Art Unit	
	Daniel J. Jenkins	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13,15-22 and 25-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13,15-22 and 25-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The Examiner has carefully considered Applicant's Response of 1/31/06. The Examiner finds that Applicant's amendment overcomes the prior rejection. The Examiner makes a new rejection at this time. The Examiner makes the following rejection non-final since the Examiner places new argument that addresses limitations present prior to this Action.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 13, 15-21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Upadhya et al. in view of Lange et al. and Meeks, III et al. '008 (Meeks '008).

Upadhya et al. discloses the invention substantially as claimed. Upadhya et al. discloses a method of forming a nano-scale microstructured object comprising:

providing a nano-scale aluminum (Al) powder (col. 4, lines 22-23 and col. 5, lines 10-23); and

consolidating the Al powder by hot isostatic pressing (HIPing) in a pressure transmitting medium (col. 5, lines 23-25) to form an aluminum object.

Upadhya et al. further discloses that the HIPing takes place at 250-350°C (482-662°F) to achieve density greater than 98.5% (col. 6, lines 37-54), and discloses an embodiment wherein the temperature is increased to 250-550°C (482-1022°F) to increase the density to almost 100% of theoretical density (col. 7, lines 9-15).

Thus, Upadhya et al. teaches to increase temperature to 482-1022°F in order to achieve higher density.

However, Upadhya et al. is silent as to performing the HIPing by a first and second temperature HIPing, but only states a single HIPing process.

Lange et al. teaches to perform HIPing in a pressure transmitting medium by incremental heating and pressing (col. 2, lines 49-56) in the same field of endeavor for the purpose of improving the distribution of pressure over the object being HIPed when the object has a shaped geometry (col. 7, lines 14-33).

The Examiner finds that although Lange et al. provides his teaching for refractory and higher melting point temperature powders, one of ordinary skill in the art would look to the overall teaching of HIPing, and learn that incremental HIPing provides for a more uniform pressure over the surface of complex shape.

Thus, it would have been obvious to one having ordinary skill in the art to incrementally select HIP temperature and pressure conditions in the invention of Upadhya et al. in the temperature range of 482-1022°F as taught by Lange et al. in order to form a uniformly dense complex shape. The overlap of ranges establishing a prima facie case of obviousness (See MPEP 2131.03).

The Examiner notes that the language "shaped nanophase aluminum powder" as found in claim 1 reads upon a spherical powder or a compacted aluminum powder.

Upadhya et al. is silent as to the HIPing being performed by mechanically pressing the powder.

Lange et al. further teaches that pressure can be applied by mechanically pressing a plunger (4) in the field of HIPing during an incremental HIPing method.

Upadhya et al. further discloses wherein the Al powder is enclosed in a container (col. 6, lines 36-40) which is deformed during HIPing, meeting the requirement of pending claim 21.

Upadhya et al. further dicloses wherein the Al powder is degassed (col. 6, line 37).

Upadhya et al. further discloses an embodiment wherein the shaped powder is provided in the form of a cold pressed billet (see EXAMPLE 2).

However, Upadhya et al. in view of Lange et al. does not teach pressures of at least about 100,000 psi, but only discloses pressures up to 50,000 psi. Updahya et a. further discloses wherein formed density was greater than 95%.

Meeks '008 teaches that nano-scale aluminum metal powders can be compacted at pressures up to180,000 psi (col. 3, line 27) in the same field of endeavor for the purpose of increasing density to full or near theoretical density (col. 4, lines 15-18).

It would have been obvious to one having ordinary skill in the art at the time of the invention to increase by pressure of Upadhya et al. by using a high pressure ram as taught by Meeks '008 in order to increase the density to full or near theoretical density.

4. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Upadhya et al. in view of Lange et al. and Meeks '008, and further in view of Fritzemeier et al.

Upadhya et al. in view of Lange et al. discloses the invention substantially as claimed (see paragraph 3 above). However, Upadhya et al. teaches that during the practice of his invention, milling is performed at room temperature with a surfactant and not by cryomilling, and discloses this when forming a high purity Al powder. Upadhya et al. teaches that cryomilling is known, but that it imparts impurities into the powder (col. 4, line 22 to col. 5, line 33).

Fritzemeier et al. teaches at col. 3, lines 11-45, that Al powder can be cryomilled with a secondary metal to form aluminum alloy powders with of high strength in the same field of endeavor for the purpose of forming objects of high strength.

It would have been obvious to one having ordinary skill in the art to use cryomilling in the invention of Upadhya et al. as taught by Fritzemeier et al. when desiring an Al alloy object instead of an Al object.

5. Claims 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Upadhya et al. in view of Lange et al.

Upadhya et al. discloses the invention substantially as claimed. Upadhya et al. discloses a method of forming a nano-scale microstructured object comprising:

providing a nano-scale aluminum (Al) powder (col. 4, lines 22-23 and col. 5, lines 10-23); and

consolidating the Al powder by hot isostatic pressing (HIPing) in a pressure transmitting medium (col. 5, lines 23-25) to form an aluminum object.

Upadhya et al. further discloses that the HIPing takes place at 250-350°C (482-662°F) to achieve density greater than 98.5% (col. 6, lines 37-54), and discloses an embodiment wherein the temperature is increased to 250-550°C (482-1022°F) to increase the density to almost 100% of theoretical density (col. 7, lines 9-15).

Thus, Upadhya et al. teaches to increase temperature to 482-1022°F in order to achieve higher density.

However, Upadhya et al. is silent as to performing the HIPing by a first and second temperature HIPing, but only states a single HIPing process.

Lange et al. teaches to perform HIPing in a pressure transmitting medium by incremental heating and pressing (col. 2, lines 49-56) in the same field of endeavor for the purpose of improving the distribution of pressure over the object being HIPed when the object has a shaped geometry (col. 7, lines 14-33).

The Examiner finds that although Lange et al. provides his teaching for refractory and higher melting point temperature powders, one of ordinary skill in the art would look to the overall teaching of HIPing, and learn that incremental HIPing provides for a more uniform pressure over the surface of complex shape.

Thus, it would have been obvious to one having ordinary skill in the art to incrementally select HIP temperature and pressure conditions in the invention of Upadhya et al. in the temperature range of 482-1022°F as taught by Lange et al. in order to form a uniformly dense complex shape. The overlap of ranges establishing a prima facie case of obviousness (See MPEP 2131.03).

The Examiner notes that the language "shaped nanophase aluminum powder" as found in claim 26 reads upon a spherical powder or a compacted aluminum powder.

Upadhya et al. is silent as to the HIPing being performed by mechanically pressing the powder.

Lange et al. further teaches that pressure can be applied by mechanically pressing a plunger (4) in the field of HIPing during an incremental HIPing method.

Upadhya et al. further discloses wherein the Al powder is enclosed in a container (col. 6, lines 36-40) which is deformed during HIPing, meeting the requirement of pending claim 27.

Upadhya et al. further dicloses wherein the Al powder is degassed (col. 6, line 37).

Upadhya et al. further discloses an embodiment wherein the shaped powder is provided in the form of a cold pressed billet (see EXAMPLE 2).

6. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Upadhya et al. in view of Lange et al. and further in view of Fritzemeier et al.

Upadhya et al. in view of Lange et al. discloses the invention substantially as claimed (see paragraph 3 above). However, Upadhya et al. teaches that during the practice of his invention, milling is performed at room temperature with a surfactant and not by cryomilling, and discloses this when forming a high purity Al powder. Upadhya et al. teaches that cryomilling is known, but that it imparts impurities into the powder (col. 4, line 22 to col. 5, line 33).

Fritzemeier et al. teaches at col. 3, lines 11-45, that Al powder can be cryomilled with a secondary metal to form aluminum alloy powders with of high strength in the same field of endeavor for the purpose of forming objects of high strength.
It would have been obvious to one having ordinary skill in the art to use cryomilling in the invention of Upadhya et al. as taught by Fritzemeier et al. when desiring an Al alloy object instead of an Al object.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Jenkins whose telephone number is 571-272-1242. The examiner can normally be reached on M-TH6:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1242. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel J. Jenkins
Primary Examiner
Art Unit 1742